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THE
ONTARIO WATER RESOURCES
COMMISSION

POLICE VILLAGE OF BRIGDEN - 1964
COUNTY OF LAMBTON

WATER POLLUTION SURVEY
POLICE VILLAGE OF BRIGDEN
COUNTY OF LAMBTON

1964

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Water pollution survey, police
village of Brigden, county of
Lambton.

80770

REPORT

ONTARIO WATER RESOURCES COMMISSION

Municipality Township of Moore County of Lambton Date of Inspection July 22, 1964

Re: Police Village of Brigden - Water Pollution Survey

Field Inspection by G.Samuel, Eng. Ass't. P.L. Timpany, Engineer Report by P.L. Timpany, B. Eng.

A water pollution survey was made of the surface water drains of the Police Village of Brigden in the Township of Moore on July 22, 1964. The necessary information was obtained previously from Mr. R.J. Wilkinson, Clerk-Treasurer, Township of Moore.

GENERAL

The Police Village of Brigden has a population of 540 (Municipal Directory, 1964).

Generally, septic tank systems are utilized for treatment of sanitary sewage. Surface water drains discharging to the south bank of Bear Creek are utilized for the disposal of industrial wastes by the Brigden Creamery and the Purity Creamery.

The water consumed by the creameries is used primarily for cooling, but some is used for washing. The water consumption for the Bridgen Creamery and Purity Creamery is about 40,000 gallons per month each.

SAMPLING

Samples were collected from four surface water drain outfalls to the Bear Creek. Samples were also collected above, at, and below the village.

The sampling points are indicated on the appended map.

WATER QUALITY OBJECTIVES

The OWRC objectives for surface water drains entering the above waters are as follows:

1. Five-Day Biochemical Oxygen Demand (5-Day BOD) - not greater than 15 parts per million (ppm);
2. Suspended Solids - not greater than 15 parts per million (ppm);
3. The presence of anionic detergents (as ABS) is indicative of pollution from domestic sources.

The OWRC water quality objectives for all waters in the Province of Ontario are as follows:

1. Five-Day Biochemical Oxygen Demand (5-Day BOD) - not greater than 4 ppm;
2. Coliforms per 100 millilitres by the Membrane Filter Method (M.F.) - not greater than 2,400 coliforms;
3. The presence of anionic detergents (as ABS) is indicative of pollution from domestic sources.

DISCUSSION OF DRAIN SAMPLES

The following are the results and evaluation of the samples collected at the four drain outfalls.

Regan Street Drain

5-Day BOD (ppm)	Solids			Anionic Detergents as ABS (ppm)	Coliforms per 100 ml. (Membrane Filter)
	Total (ppm)	Susp. (ppm)	Diss. (ppm)		
5,800	8,118	2,622	5,496	3.6	160,000,000

The Regan Street Drain provides surface-water drainage for the most westerly part of the village and is also used by the Bridgen Creamery for waste disposal.

The results of the samples collected indicate that there is gross pollution entering Bear Creek from this drain.

The presence of anionic detergents indicates pollution from domestic sewage, probably resulting from the interconnection of septic tanks with the surface water drain.

Main Street Drain

5-Day BOD (ppm)	Solids Total (ppm)	Solids Susp. (ppm)	Solids Diss. (ppm)	Anionic Detergents as ABS (ppm)	Coliforms per 100 ml. (Membrane Filter)
1,360	2,474	348	2,126	2.6	960,000,000

The Main Street drain provides surface-water drainage for the central-western section of the village, and the wastes from the Purity Dairy also discharge to this drain.

The sample analysis results indicate that there is also gross pollution emanating from the Main Street Drain, and probably septic tanks are also connected to this drain.

The results of the samples collected from the combined Main Street and Campbell Street drains are as follows.

Mileage Point	Location	5-Day BOD (ppm)	Solids Total (ppm)	Solids Susp. (ppm)	Solids Diss. (ppm)	Anionic Detergents as ABS (ppm)	Coliforms per 100 ml. (Membrane Filter)
SYN 28.9	Bear Creek (Just west of Main St. bridge)	3,050	4,226	1,068	3,158	4.0	710,000,000

Campbell Street Drain

Mileage Point	5-Day BOD (ppm)	Solids Total (ppm)	Solids Susp. (ppm)	Solids Diss. (ppm)	Anionic Detergents as ABS (ppm)	Coliforms per 100 ml. (Membrane Filter)
29.1	28	1,478	258	1,220	5.0	60,000,000

The Campbell Street Drain serves the eastern-central section of the village, providing for surface-water drainage.

The results of the samples collected at this outfall indicate that definite pollution results from the effluent. The high amount of anionic detergent indicates that domestic wastes are discharging to this drain.

Fitchett Street Drain

Mileage Point	5-Day BOD (ppm)	Solids Total (ppm)	Solids Susp. (ppm)	Solids Diss. (ppm)	Anionic Detergents as ABS (ppm)	Coliforms per 100 ml. (Membrane Filter)
29.15	60	2,378	1,028	1,350	8.2	1,150,000

The Fitchett Street storm drain serves the east section of the village. Like the Campbell Street Drain, the sample results indicate that inadequately treated domestic sewage enters Bear Creek from this drain.

REFUSE DISPOSAL

The village garbage is hauled to the Municipal Garbage Dump of the Township of Sombra and hence does not contribute to the pollution of Bear Creek.

DISCUSSION OF CREEK ANALYSIS

The following are the results of the analysis of samples collected from three points as indicated below.

Mileage Point	Location	5-Day BOD (ppm)	Solids Total (ppm)	Solids Susp. (ppm)	Solids Diss. (ppm)	Anionic Detergents as ABS (ppm)	Coliforms per 100 ml. (M.F.)
SYN 31.0	Bear Creek above Bridgen	3.4	1,276	23	1,253	0.4	40
SYN 29.0	Bear Creek at Main St. bridge, Bridgen	3.2	1,208	30	1,178	0.4	12,000
SYN 28.5	Bear Creek below Brigden	4.0	1,136	27	1,109	0.4	530,000

These results indicate a deterioration in water quality as the creek flows through the Police Village of Brigden.

REQUIRED REMEDIAL ACTION

In smaller communities, pollution of watercourses can be lessened by the elimination of private drain connections to the surface water drains.

In the Police Village of Brigden, the two dairies are the major sources of pollution to Bear Creek. The discharge of these polluting materials should be eliminated.

SUMMARY

A water pollution survey was made of the surface water drains of the Police Village of Brigden in the Township of Moore on July 22, 1964.

The sample results showed that gross pollution is resulting in Bear Creek due to the discharge of untreated or inadequately treated domestic and industrial wastes to surface water drains.

The sources of pollution should be located and eliminated either by providing satisfactory individual systems or by constructing a municipal sewage collection and treatment works.

RECOMMENDATIONS

1. The septic tanks and private waste water drains that are connected to the surface water drains should be located and disconnected.

2. Serious consideration should be given to providing treatment to the two creamery waste waters.

All of which is respectfully submitted,

District Engineer____________________
C.E. McIntyre, P. Eng.

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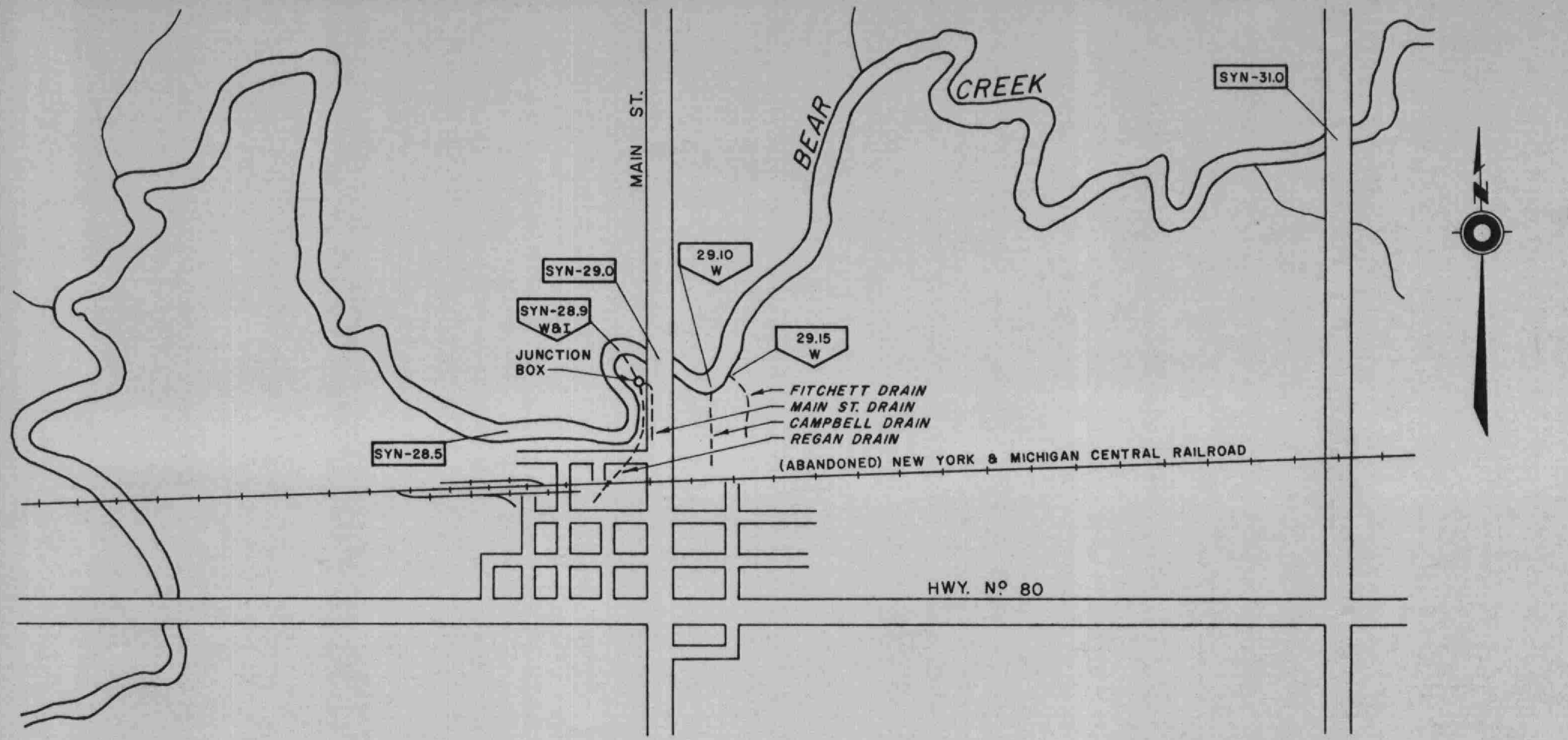
Approved by K. H. Sharpe
K.H. Sharpe, Director



LEGEND

SYN-28.5 — SAMPLING POINTS SHOWING STREAM AND MILEAGE

SYN-28.9 W&I — STREAM AND MILEAGE AT OUTFALL

OUTFALL SYMBOL LETTERS

W - STORM OR SURFACE WATER DRAIN
I - INDUSTRIAL SEWER

ONTARIO WATER RESOURCES COMMISSION

POLICE VILLAGE OF BRIGDEN

WATER POLLUTION SURVEY

SCALE: 4" = 1 MILE	
DRAWN BY: A.R.S.	DATE: SEPT., 1964
CHECKED BY:	DRAWING Nº: 64-65